

The opinion in support of the decision being entered today was not written for publication  
and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte HIDEO SAMURA

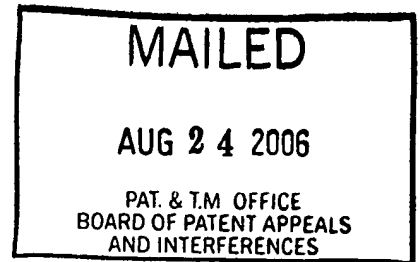
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Appeal No. 2006-1929  
Application No. 09/343,092

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ON BRIEF

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Before THOMAS, SAADAT, and HOMERE, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's final  
rejection of claims 1, 4 through 7 and 11, the examiner having objected to  
claim 12.

Independent claim 1 is reproduced below:

1. A head for ink-jet printer comprising;

a silicon substrate on which a plurality of ink nozzles and a plurality of ink passages each communicating separately to each of the ink nozzles are processed finely using a plasma etching method;

an inorganic substrate which is joined with said silicon substrate and is provided with ink chambers each communicating separately to each of the ink passages; and

a piezoelectric element of ferroelectric substance for changing separately a capacity of each of the ink chambers to jet an ink from said ink nozzles through said ink passages;

wherein said ink passages are fine as compared with said ink chambers and said ink nozzles are fine as compared with said ink passages, and

wherein said inorganic substrate has a common ink supply port for supplying ink to said plurality of ink passages at a portion on a surface of said inorganic substrate between a plurality of said piezoelectric elements.

The following references are relied on by the examiner:

Cruz-Urbe et al. (Cruz-Urbe)	4,680,595	Jul. 14, 1987
Hasegawa et al. (Hasegawa)	5,530,465	Jun. 25, 1996
Chang	6,099,111	Aug. 8, 2000
		(Filed Jan. 23, 1998)

All claims on appeal, claims 1, 4 through 7 and 11 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Cruz-Urbe in view of Chang and further in view of Hasegawa.

Rather than repeat the positions of the appellant and the examiner, reference is made to the brief and reply brief for appellant's positions, and to the answer for the examiner's positions.

### OPINION

For the reasons set forth by the examiner in the answer, as expanded upon here, we sustain the rejection of all claims on appeal under 35 U.S.C. § 103. For his part, appellant has presented arguments only as to two features of independent claim 1 on appeal and no other claim on appeal. These features relate to the silicon substrate on which a plurality of ink nozzles are located and the wherein clause at the end of the claim relating to the location of the common ink supply port being positioned on a surface of an inorganic substrate between a plurality of piezoelectric (PZ) elements.

From our prospective it's noteworthy to point out initially that Hasegawa essentially shows the claimed silicon substrate onto which is placed an inorganic substrate generally in the manner claimed and disclosed in figure 1 as elements 1 and 2. Note that the second substrate 107 onto which is placed the first substrate 101 within which details of the PZ

elements are taught. Note also generally the showings in figures 4 and 8B.

The examiner has pointed out that it was known in the art, in the discussion beginning at column 2, line 9, to have made ink jet printer heads based upon an initial crystalline silicon substrate onto which a PZ element has been placed. This is also contemplated in Hasegawa's disclosed invention at the middle of column 6. On the other hand, the details of this reference relate to the fabrication of the PZ element using inorganic layers.

As to Cruz-Urbe, figure 1 shows that a plurality of discrete plates are laminated together to form the printhead shown in figures 2 and 3, for example. In addition to some teachings as to the choice of materials for these respective plates, there are general teachings in the paragraph bridging columns 5 and 6 of this reference. Additional representative teachings are at the paragraph at the bottom of column 8 as well. Obviously, within 35 U.S.C. § 103, the artisan would have been necessarily looking to the approaches in the art already taught by Hasegawa as to the manner in which the actual plates of Cruz-Urbe can be fabricated in an effort to assemble an overall printhead.

What the examiner appears not to appreciate is that the showings in figures 1 and 4 of Cruz-Urbe appear to already show the disputed wherein clause at the end of claim 1 on appeal relating to a common ink supply port being on a surface of an inorganic substrate between the PZ elements. Feed tube 24 shown in figure 3 is generally depicted in perspective view in figure 1 and shown in a printhead top plan view clearly indicating to the artisan that it was known in the art to position this ink supply inlet port between the PZ elements as claimed. The reference additionally shows that the port 24 appears to be above, but it is still between, the PZ elements 50 in these figures.

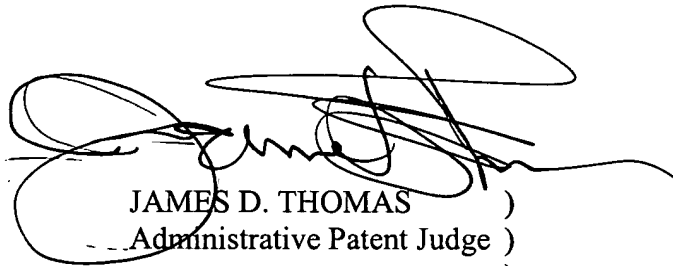
The examiner's additional reliance upon Chang buttresses the already identified showings in Cruz-Urbe as to the placement of an inlet port for print chambers as argued. The paragraph at column 2, lines 21 through 30 of Chang explains the advantageous placement of the inlet port more directly between the PZ elements than is shown in Cruz-Urbe. The initial showings in figures 1 and 2 are repeated throughout the reference in the additional embodiments as explained by the examiner.

This expanded analysis of the teachings and showings in the prior art relied upon by the examiner argues well for the combinability within 35 U.S.C. § 103 to the extent this issue is argued in the brief and reply brief. Appellant's principal argument in the brief and reply brief does appear to be the examiner's reliance upon Chang. In our considerations of the teachings at column 6 of Chang, this reference at this location appears to merely teach additional, alternative embodiments rather than to not teach the approach followed by the examiner relying upon the earlier embodiments. Therefore, the approaches indicated at column 6 do not detract from the examiner's reliance upon the earlier teachings within 35 U.S.C. § 103.


In view of the foregoing, the decision of the examiner rejecting all claims on appeal under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).


AFFIRMED



JAMES D. THOMAS )  
Administrative Patent Judge )



MAHSHID D. SAADAT )  
Administrative Patent Judge )



JEAN R. HOMERE )  
Administrative Patent Judge )

BOARD OF PATENT  
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